

**NATURAL RESOURCES CONSERVATION SERVICE  
INTERIM CONSERVATION PRACTICE STANDARD**

**GRASS BUFFER STRIPS**

(Acre)

**CODE 741**

**DEFINITION**

Permanent strips of grass or grass-legume mixtures arranged as nearly as possible on the contour, placed on the most erodible segment(s) of the field.

**PURPOSES**

This practice may be applied as part of a resource management system to support the following purposes:

- reduce sheet and rill erosion
- reduce transport of sediment and other water-borne contaminants down-slope, on-site or off-site
- enhance upland wildlife habitat

**CONDITIONS WHERE PRACTICE APPLIES**

The practice applies to cropland with slopes greater than 8 percent where water erosion problems are predominate in Washington State, including parts of Adams, Asotin, Columbia, Douglas, Garfield, Lincoln, Spokane, Walla Walla, and Whitman counties. This practice applies to all cropping systems that could be strip-cropped with field strips or divided slopes including those with fallow, annual cropping, and grasses or legumes in rotation. These strips are placed on the most erodible segments of the field and areas subject to on-site or off-site sediment transport occurring from sheet or rill erosion.

The practice is most suitable in regions where rainfall intensities produce a 10 year EI less than 20 (EI = storm energy \* intensity). The

strips of permanent vegetative cover are not a part of the normal crop rotation.

This practice is not suited to fields where the slope length exceeds the critical slope length for contouring by more than 1.5 times, unless the field slope length is shortened by the installation of other practices (e.g. terraces).

This practice does not apply to strip-cropping where the width of the grass buffer strips will be equal to or exceed the width of the adjoining crop strips.

**CRITERIA**

**General Criteria Applicable to All Purposes..**

**a. Arrangement of Strips**

The grass buffer strips shall be placed on the most erodible segment of the field. The design criteria will be based on field observations to determine the most erodible areas for slope and slope length and current erosion prediction technology. When used in combination with terraces, diversions, or water and sediment control basins, the layout of the grass buffer strips shall be established above or below these conservation practices and coordinated with their grade and spacing so that conservation practice boundaries will be parallel where possible.

Cropped strips are typically alternated with the grass buffer strip(s) down the hill slope. Since the cropped strip width is designed to account for some multiple of full equipment width, the grass buffer may occupy the area at the top of the hill if tillage equipment will not fit that particular site.

**b. Width of Strips**

Conservation practice standards are reviewed periodically, and updated as needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

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The width of the cropped strips shall not exceed 50 percent of the critical slope

length. Critical slope lengths for conservation planning for strip cropping are assumed to be 1.5 times the critical slope length for contouring. The critical slope length for contouring shall be determined using AH 703.

The grass buffer strip width should be fitted to the particular soil, slope, topography, climate, and cropping systems; giving due consideration to the characteristics of the farming equipment used.

#### **c. Row Grade, Strip Boundaries, and Baselines**

The grade of the lower edge of the grass strip where it joins the upper edge of the cropped strip shall be aligned as closely as possible to the contour to achieve the greatest erosion reduction possible. The maximum grade of any row within the crop strips shall not exceed one half of the up and down hill field slope or 5 percent grade, whichever is less. When the row grade of any crop strip reaches the maximum allowable design grade, a new baseline shall be established up or down slope from the last grass buffer strip and used for the layout of the next crop strip.

#### **d. Stable Outlets**

Stable outlets will be used to ensure that surface or concentrated flow conditions that cause erosion do not occur as a result of establishing the grass buffer strips and crop rows. Stable outlets include grassed waterways, underground outlets for terraces or diversions, water and sediment control basins, field borders, headlands or end rows, or similarly stabilized areas.

#### **e. Vegetation**

The grass buffer strips shall have a Vegetative Cover-Management Condition of 1 (established meadow - very dense cover) or 2 (1st year meadow or grass legume hay just before cutting) that provides protective cover and induces sediment deposition during periods when erosion is expected to occur on the cropped strips. Cover Management Conditions are described in Chapter 6, AH 703.

To determine grass and legume stand establishment on sites with less than 16"

precipitation stand counts should have a density of at least 3-5 plants per square foot. On sites with greater than 16" precipitation stand counts should have a density of at least 5-7 plants per square foot. Each stem of a rhizomatous species more than 2 inches away from another of the same species may be counted as a separate plant.

Cropped strips will be expected to have a Cover-Management Condition within the range from 3 (heavy dense cover or very rough) to 5 (light cover or roughness or both). The cropland cover-management condition for estimating P-values shall be equal to or greater than the system prior to installation of the grass strips. This will ensure that erosion in the cropped areas has been reduced due to installation of the crop and grass buffer strips.

See the "USDA-NRCS Washington and Oregon Guide for Conservation Seeding and Plantings" for plant species that meet the characteristics for the purposes defined below.

Plants listed on the noxious weed list of Washington will be controlled.

#### **f. Level of Erosion Control**

The level of erosion control achieved by the grass buffer strip cropping system shall meet or exceed the soil erosion level specified by the conservation plan objective. It shall be determined using AH 703, accounting for the impact of other conservation practices in the system.

#### **Additional Criteria to Reduce Sheet and Rill Erosion**

##### **a. Vegetation**

Vegetation grown on grass buffer strips designed to reduce sheet and rill erosion shall be established to permanent vegetation consisting of grasses or grass-legume mixtures, adapted to the site, and tolerant of the anticipated depth of sediment deposition. At least 25 percent of the seed mixture shall consist of a sod-forming grass.

#### **Additional Criteria to Reduce the Transport of Sediment and Other Water-Borne**

### **Contaminants Down-slope; On-site or Off-site.**

#### **a. Arrangement of Strips**

A grass buffer strip will be established at the bottom of the slope, if that is the field edge, to reduce transport of sediment contributed from the up-gradient cropped strip. This grass buffer strip shall be a minimum of 20 feet in width using design criteria as set forth in the filter strip standard. The strip width shall be designed to account for some multiple of full equipment width.

A filter strip will be established above or around any perennial stream or wetland. See NRCS Washington Conservation Practice Standard Filter Strip (393) design and establishment criteria.

#### **b. Vegetation**

Grass buffer strips designed to reduce the transport of sediment and other water-borne contaminants shall be established to permanent vegetation with stiff, upright stems only.

#### **c. Headlands or End Rows**

Headlands or end rows shall be vegetated and have a minimum width of 15 feet between the end of the tilled strip and the field's edge. Vegetated headlands or end rows shall have a surface residue ground cover above 65 percent.

### **Additional Criteria to Enhance Wildlife Habitat**

#### **a. Vegetation**

To enhance wildlife habitat, a native grass species mixture will be considered where adapted. Use non-invasive grasses that will provide the necessary habitat, food, and canopy structure for wildlife; persist for several years; and compete effectively with weeds.

Delay mowing the grass buffer strips based on the wildlife species habitat needs. Mow only after the vegetation has been established. Allow for re-growth before the growing season ends.

## **CONSIDERATIONS**

Prior to design and layout, consider removing any obstructions or making changes in field boundaries or shape, where feasible, to improve the effectiveness of the practice and the ease of performing farming operations.

Prior to layout, inspect the field's position on the landscape to find key points for commencing layout or determining the width of one set of strips (one cultivated and one grass buffer) to pass by an obstruction or ridge saddle.

Consider maintaining standing residual cover in the cropped strips to provide early and late season nesting and escape cover for many species of wildlife displaced from other mowed areas.

Some non-noxious weedy growth may be allowed in the grass buffer strips as it provides food for wildlife.

## **PLANS AND SPECIFICATIONS**

Specifications for installation, operation, and maintenance of grass buffer strips shall be prepared for each field according to the Criteria, Considerations, and Operations and Maintenance described in this standard; and shall be recorded on specification sheets, job sheets, narrative statements in conservation plans, or other acceptable documentation.

Each specification shall document:

- Map showing key baseline
- Conservation objective with supporting RUSLE documentation
- Grass buffer strips and cropped area width
- Vegetation establishment
- Species
  - Intended cover/plant density
  - Planting date
  - Fertilizer and amendments
- Operations and Maintenance

## **OPERATION AND MAINTENANCE**

Conduct all farming operations parallel to the strip boundaries starting at the top of the

cropped area, except on headlands or end rows with gradients less than the criteria set forth in this standard.

Ensure crop herbicide programs are compatible with vegetation in grass buffer strips. Shut off applicator when traversing the grassed area.

Control livestock and vehicular traffic to reduce compaction and prevent concentrated flow from occurring within the grass buffer strip.

Time mowing of grass buffer strips to maintain appropriate vegetative density and height for optimum trapping of sediment from the up-slope cropped strip during the critical erosion period(s).

If wildlife enhancement and biological diversity is desired, delay mowing until after the desired species habitat is acquired.

Following first year seeding, fertilize grass buffer strips based on periodic spring soil tests to maintain stand density (see Nutrient Management Standard (590)).

Renovate grass buffer strip systems damaged by herbicide application after residual action of the herbicide is complete.

Redistribute sediment accumulations along the up-slope edge of the grass buffer strip when sediment reaches 6 inches. If sediment accumulates below the up-slope edge of the grass buffer strip to a depth greater than 6 inches, re-distribute or re-establish grass-cropped interface using light tillage operations. This will maintain uniform sheet flow along the grass/crop boundaries.

## REFERENCES

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[www.wa.gov/agr/weedboard/weed\\_info/contents.html](http://www.wa.gov/agr/weedboard/weed_info/contents.html)